

### **ABSTRACT OF THE DISCLOSURE**

A strain sensor comprises an optical waveguide having a plurality of reflecting structures (Bragg gratings) along its length. Each structure reflects light at a different characteristic wavelength ( $\lambda_1$  to  $\lambda_{n+1}$ ) which changes in dependence on a change of physical length of at least part of the reflecting structure. The reflectivity of reflecting structures which reflect at characteristic wavelengths which are adjacent to each other ( $\lambda_1$  and  $\lambda_2$  or  $\lambda_n$  and  $\lambda_{n+1}$ ) are configured to be different such that the intensity of light reflected from adjacent structures can be used to discriminate between them.

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